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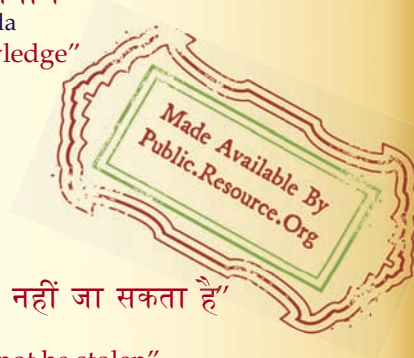
IS 10794 (1984): Mild steel wire for cottor pins [MTD 4: Wrought Steel Products]



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“Knowledge is such a treasure which cannot be stolen”

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IS : 10794 - 1984

Indian Standard
SPECIFICATION FOR
MILD STEEL WIRE FOR COTTER PINS

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR

MILD STEEL WIRE FOR COTTER PINS

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Indian Standard

SPECIFICATION FOR

MILD STEEL WIRE FOR COTTER PINS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 January 1984, after the draft finalized by the Wrought Steel Products Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Cotter pins are generally used for locking nuts in circular motion. This standard covers requirements of half round mild steel wire for cotter pins.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirement for half round mild steel wire of sizes 0.4 to 20 mm dia for cottor pins.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1956 (Part 5) - 1975† shall apply.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of mild steel wire for cotter pins shall be as laid down in IS : 8910-1978‡.

*Rules for rounding off numerical values (revised).

†Glossary of terms relating to iron and steel : Part 5 Bright steel bar and steel wire.

‡General technical delivery requirements for steel and steel products.

4. MANUFACTURE

4.1 Unless otherwise agreed at the time of ordering, the method of manufacture shall be left to the discretion of the manufacturer; however, the user shall have the right to be informed of the method on request at the time of delivery.

4.2 Steel shall be supplied either in killed or semi-killed condition.

5. CHEMICAL COMPOSITION

5.1 Wire when analysed either by the method specified in the relevant parts of IS : 228* or any other established instrumental/chemical method shall have the following chemical composition. In case of dispute the procedure given in IS : 228* and its relevant part shall be referee method.

<i>Constituent</i>	<i>Percent, Max</i>
Carbon	0.15
Manganese	0.65
Phosphorous	0.05
Sulphur	0.05

NOTE — When the steel is silicon killed, product analysis shall show a minimum of 0.10 percent silicon. When the steel is aluminium killed, the requirement regarding minimum silicon content does not apply.

6. SHAPES, SIZES AND TOLERANCES

6.1 Wire Section — Wire shall be of half round section. The flat side of the wire shall have a small degree of rounding edges as given in Table 1.

6.2 Wire Sizes — Standard size of wire and their tolerances are given in Table 1.

6.3 Sizes other than those mentioned in Table 1 may be supplied subject to agreement between the purchaser and the manufacturer.

6.3.1 Tolerances for intermediate sizes shall be the same as per the next lower standard size.

7. PHYSICAL PROPERTIES

7.1 Tensile Test — The tensile strength of wire when tested in accordance with IS : 1521-1972† shall be within 550 MPa.

$$(1 \text{ MPa} = 1 \text{ N/mm}^2 = 1 \text{ MN/m}^2 = 0.102 \text{ 0 kg/mm}^2).$$

*Methods of chemical analysis of steels (second revision) (issued in parts).

†Method for tensile testing of steel wire (first revision).

TABLE 1 RADIUS ON CORNER OF THE WIRE

(Clauses 6.1, 6.2 and 6.3)

SIZE OF WIRE mm	TOLERANCE mm	RADIUS ON CORNER OF THE WIRE mm
0.450	±0.015	0.05
0.630	±0.02	0.05
0.850		0.10
0.950		0.10
1.350	±0.03	0.15
1.750	±0.04	0.15
2.240		0.20
2.800		0.25
3.550	±0.05	0.30
4.500		0.40
5.800		0.50
7.400	±0.06	0.60
9.400		0.70
12.250		0.95
15.250		1.20
19.150		1.50

7.2 Hardness—Hardness of wire shall be determined if mutually agreed to between the supplier and the purchaser. Hardness of wire when determined in accordance with IS : 1501-1968* shall be within the range as given in Table 2.

TABLE 2 HARDNESS OF WIRE

DIAMETER OF WIRE mm	HARDNESS HV
0.80 and under	180-240
Over 0.80 including 1.20	160-220
Over 1.20	121-195

7.3 Wrapping Test — Wire smaller than 5 mm dia only shall be subject to wrapping test in accordance with IS : 1755-1961†. The wire shall not break or split when wrapped eight times round its own diameter, the round side of wire coming inside and subsequently straightened.

7.4 Bend Test — Wire of 5 mm diameter and over shall be subject to this test. The wire shall not break or split when bent through an angle of 180° over a mandrel of diameter equal to the diameter of the wire, the round sides of the wire coming in contact on bending.

*Vickers hardness test for steel (first revision).

†Method for wrapping test of wire.

8. FINISH

8.1 Wire shall be supplied in self colour finish.

8.2 Finish other than self-finish may be supplied subject to agreement between the purchaser and the manufacturer.

9. FREEDOM FROM DEFECTS

9.1 All finished wire shall be clearly drawn or rolled to the dimensions specified. The finished wire shall be sound, free from scales, splits, surface flaws, rough, jagged and imperfect edges, and other harmful defects. The coating shall be smooth and uniform.

10. PACKING

10.1 Each coil of wire shall be suitably bound and fastened compactly.

10.2 If required by the purchaser, each coil shall be protected by suitable wrapping.

11. MARKING

11.1 Each coil of wire shall be marked legibly with the size of wire, lot number and trade-mark or name of the manufacturer. Finishes other than self finish should also be marked.

11.2 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. The ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

12. SAMPLING

12.1 Lot — In any consignment, all the coils of wire of the same grade and diameter, manufactured under essentially similar conditions of manufacture, shall be grouped together to constitute a lot.

12.2 Sampling size and acceptance criteria for physical and chemical requirements of wire shall be in accordance with IS : 10206-1982*.

*Methods of sampling steel wires.